

**Step 3 (cont.)**

**Procedure:** Face the tapped end of the  $\frac{3}{4}$ " round. This will determine how true your engine will be. Also important is the  $1\frac{5}{16}$ " measurement -- this fixes the compression ratio. Part #X02 and #X03 should have 0.001" - 0.0015" clearance in cylinder.

**Step 4**

**HEAD:** Sheet #9

**Part:** #104

**Materials:** 4" dia. x  $\frac{1}{2}$ " HRS., 2 pieces 1" x 1" x  $1\frac{7}{8}$ ".

**Procedure:** Use 4-jaw chuck and machine manifolds to size. Turn 4" dia. blank and mark center. Silver-solder the manifolds on opposite side. Using center mark layout sparkplug, valve ports, headbolts, and rockerarm support holes. Drill sparkplug, headbolt and rocker support holes. Chuck and turn the  $\frac{1}{8}$ " x 1.996" dia. boss. Bolt to parallels (#X106) using headbolt holes. Carefully locate one valve port layout and and clamp to drill press table. Center drill,  $\frac{25}{64}$ " drill through,  $\frac{7}{16}$ " drill  $\frac{7}{8}$ " deep,  $\frac{7}{16}$ -20 tap through,  $\frac{17}{32}$ " drill  $\frac{7}{8}$ " deep and 82 degrees countersink to  $\frac{19}{32}$ " dia. Repeat on other port.  $\frac{9}{16}$ " drill  $\frac{3}{8}$ " pipe tap intake and exhaust manifolds. Countersink outside sparkplug hole 82 degrees  $\frac{1}{16}$ " deep.

**Step 5**

**BASE:** Sheet #1

**Part:** #105

**Materials:**  $1\frac{1}{2}$ " x  $\frac{1}{2}$ " x 36" CRS., 6" x  $\frac{1}{4}$ " x 40" HRS.,  $\frac{1}{2}$ " heavy-wall black pipe x 24" (note: standard wall pipe may be used.)

**Procedure:** Make a 7" radius template from sheet metal. Bend about 8" of pipe to template and saw into quarters. Cut 6" length of pipe and saw into quarters. Cut 2 pieces  $\frac{1}{4}$ " x 6" x  $11\frac{3}{4}$ ". Clamp one piece on bench. Place one straight quartered pipe at left end. Hold in place (90 degrees) with a piece of  $\frac{3}{4}$ " or 1" angle iron. Now layout holes and top line from angle iron. Next hold curved quatered pipe in place and scribe, clamp to other piece and saw as a set. (Procedure continues on next page.)